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ABSTRACT

At Chattanooga State Technical Community College (CSTCC) in Tennessee, a "regional concept" for health care program delivery was developed involving affiliations with approved regional health care facilities. The delivery system allows CSTCC students enrolled in the college's para-radiologic technology (PRT) specialty programs to receive their didactic training at CSTCC and their clinical training at an affiliated facility near their home. Students are scheduled for 16 hours of classroom training and 24 hours of clinic training every other week, while in the weeks between class sessions students are scheduled for a full 40 hours of clinic training. The PRT programs have 32 affiliate facilities, located in Tennessee, Georgia, Alabama, and Kentucky. Students may apply to the programs as either traditional students, attending full-time but not entitled to receive compensation during clinic hours, or as non-traditional students, attending only the didactic portion of the program during the first two semesters and completing all clinical competency requirements during the third semester. Benefits of the regional program concept include program accessibility since students do not have to relocate to continue their education, relatively low tuition, increased student to technologist ratios since students are not concentrated in one area, and convenient scheduling. A list of required courses is included as well as recommendations for dealing with the program's accelerated didactic schedule, the independence of clinical sites, and the stress to faculty of managing regional programs. (PAA)

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Innovative Educational Programs

Using Flexible Delivery Systems

by

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December 17, 1993

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INNOVATIVE EDUCATIONAL PROGRAMS

USING FLEXIBLE DELIVERY SYSTEMS

The need for flexible and innovative educational delivery systems is no where more acute than in health care programs due to the fact that these programs are traditionally low enrollment, high faculty to student ratio, high demand and high cost. Chattanooga State Technical Community College took the challenge to offer highly specialized imaging programs in a way which would combat these problems and allow the College to operate these programs not only efficiently but effectively.

This challenge crystallized in the form of a "regional concept" in program delivery; the definition of "regional concept" being an "educational program in which affiliations are established across a regional geographic area to strengthen and broaden the practical application portion of a program." Chattanooga State focused its efforts regarding these regional programs on para-radiologic technology specialty programs: radiation therapy technology, nuclear medicine technology, diagnostic medical sonography and magnetic resonance imaging.

In brief, the regional model requires students to attend class at Chattanooga State for two days every other week. The time between class sessions is spent in clinic at an approved regional health care facility. Every effort is made to place students in a clinic which is geographically close to their home.

These specialty programs were appropriate for regional concept implementation due to the fact that they are programs which traditionally have low enrollment and are expensive to operate. Recruiting students from a regional pool assures an adequate number of applicants to make the program cost and resource effective over many years. Additionally, these programs require intensive clinical affiliation for students and the regional model allows students to complete clinical requirements without the need for permanent relocation.

The question may be asked: Why is it necessary to operate health care programs on a regional basis?

- To solve the acute manpower shortage for qualified health-care providers in the geographic area;
- To meet the long-term need of the community and geographic area by offering on-going programs with viable enrollment numbers in a geographic region large enough to assure ample employment opportunities for graduates;
- To provide educational options for health care providers to become multi-competent;
- To provide the means for registered radiologic technologists currently employed in one of the specialty areas to qualify for certification by the respective credentialing board.

The regional model was born with the implementation of the basic Magnetic Resonance Imaging (MRI) program at Chattanooga State in 1988. Over the course of the last five years, Chattanooga State has become nationally known as the premier college-credit program in MRI. This program has attracted students from New York to California. Due to technological advances in the field, an advanced Magnetic Resonance Imaging course was implemented in the spring of 1991; the prerequisite for this course is completion of the basic MRI course. A third course will be added to this sequence during the summer of 1994 and will be a culminating course in preparation for the required registry exam for advanced certification as a magnetic resonance imaging technologist.

The phenomenal success of this program prompted the addition of Radiation Therapy Technology in 1991, followed by Nuclear Medicine Technology and Diagnostic Medical Sonography. Each of these regional programs will be briefly profiled.

The Nuclear Medicine Technology (NMT), Radiation Therapy Technology (RTT) and Diagnostic Medical Sonography (DMS) programs, are similar to the MRI courses in that they are regionally based. The main difference is that a 12 month technical certificate of 32 semester hours credit is awarded to the student.

The regional concept allows Chattanooga State Technical Community College to serve its immediate area and the greater Tennessee region while maintaining an enrollment which justifies the expenditure of limited state funds. NMT, RTT and DMS have affiliates located in the following states and cities:

TENNESSEE	GEORGIA	ALABAMA	KENTUCKY
Chattanooga	Atlanta	Huntsville	Bowling Green
Knoxville	Macon	Gadsden	
Bristol	Rome		
Johnson City	Dalton		
Kingsport	Gainesville		
Nashville	Decatur		
Jackson			
Oak Ridge			
Cleveland			

Currently, there are thirty-two (32) facilities located in these cities that are affiliated with the programs. Eight (8) of these are common to both the NMT and RTT programs.

The number of student applicants, enrollment and graduates have reflected the success of the regional concept. Sixteen (16) students completed the RTT program in 1992 and thirteen (13) students in 1993. Sixty (60) applications were received for 1993-94 and the program has accepted twenty-five (25) students. The NMT program received twenty-five (25) applications for 1993-94 and has accepted twenty (20) students. DMS will accept the first class for 1994-95. Traditional programs would only be able to serve single digit numbers of students in order to avoid "flooding" the job market in their area.

Upon completion of the Nuclear Medicine Program, students are eligible to write either the Nuclear Medicine Technology Certification Board (NMTCB) or American Registry of Radiologic Technologists (ARRT) certification exams in Nuclear Medicine Technology. Radiation Therapy Technology students are eligible to write the ARRT certification exam in Radiation Therapy Technology. Diagnostic Medical Sonography students are eligible to write the American Registry of Diagnostic Medical Sonographers (ARDMS) exam. The RTT program is currently accredited by the American Medical Association (AMA) Committee on Allied Health Education Accreditation (CAHEA). The NMT program accreditation is pending with a site visit by the review committee scheduled for late 1993 or early 1994. The DMS program accreditation is pending with completion of the self-study scheduled for early 1994 and a site visit in late 1994 or early 1995.

These programs are designed for the student to receive all didactic training at Chattanooga State and their clinical training at an affiliated facility near their home. Therefore, students are scheduled for 16 hours of

classroom training on an alternating week schedule. The NMT students are in class on Monday & Tuesday while the RTT students report on Thursday & Friday. DMS students will be scheduled to meet on Thursday and Friday of the opposite week. With the programs meeting on different days, only one classroom must be reserved, maximizing its use. Adhering to the Essentials for Accreditation, which require that students not be in class or clinic more than forty (40) hours per week, students are scheduled for twenty-four (24) hours of clinic during the week of scheduled class and forty (40) hours the week when no classes are held.

RTT, NMT and DMS programs have two categories for which a student may apply:

1. Traditional Students are full-time, forty (40) hours per week. These students are not eligible to receive compensation during the hours scheduled for clinic. Individuals applying for this category must be a graduate of a CAHEA accredited or equivalent Radiologic Technology program and be ARRT eligible or currently registered by the ARRT in radiography.

2. Non-Traditional Students are only required to attend the didactic portion of the program during the first two semesters. However, these students must complete all clinical competency requirements during the third semester. Individuals applying for this category must be currently registered by the ARRT in radiography, document 2 years full-time employment as a Nuclear Medicine Technologist, Radiation Therapy Technologist or Diagnostic Medical Sonographer and continue to be employed in their field during the program year.

Courses of study for the NMT program include:

		Traditional Hours	Non-Traditional Hours
NM 200	Introduction to Nuclear Medicine	2	2
NM 201	Instrumentation and Statistics	2	2
NM 205	Clinical Procedures I	2	2
NM 207	Practicum in Nuclear Medicine I	6	-
NM 208	Radiopharmacology	2	2
NM 215	Clinical Procedures II	4	4
NM 217	Practicum in Nuclear Medicine II	3	-
NM 212	Physics and Radiation Biology	4	4
NM 225	Clinical Procedures III	4	4
NM 227	Practicum in Nuclear Medicine III	3	3
TOTAL SEMESTER HOURS		**32**	**23**

Courses of study for the RTT program include:

HS 123	Introduction to Radiation Oncology	3	3
HS 214	Radiation Physics I	4	4
HS 174	Anatomy and Imaging	2	2
HS 220	Clinic I	6	-
HS 224	Radiation Physics II	4	4
HS 223	Radiation Oncology I	3	3
HS 230	Clinic II	2	-
HS 233	Radiation Oncology II	3	3
HS 243	Radiation Biology	3	3
HS 240	Clinic III	2	2
TOTAL SEMESTER HOURS		**32**	**24**

Courses of study for the DMS program include:

DMS 200	Introduction to Diag. Med. Sonog.	1	1
DMS 201	Ultrasound Physics I	2	2
DMS 202	Obstetrics and Gynecology I	3	3
DMS 203	Abdominal and Small Parts I	3	3
DMS 205	Clinic I	3	-
DMS 210	Departmental Management	1	1
DMS 211	Ultrasound Physics II	2	2
DMS 212	Obstetrics and Gynecology II	2	2
DMS 213	Abdominal and Small Parts II	2	2
DMS 215	Clinic II	3	-
DMS 220	Ultrasound Seminar	1	1
DMS 221	Ultrasound Physics III	2	2
DMS 222	Obstetrics and Gynecology III	2	2
DMS 223	Abdominal and Small Parts III	2	2
DMS 225	Clinic III	3	3
TOTAL SEMESTER HOURS		**32**	**26**

The regional program concept offers benefits for the student and the college. Among these are program accessibility, cost, increased student to technologist ratio and convenience.

1. Program Accessibility - Students do not have to relocate to continue their education. This is an advantage for those who cannot relocate due to personal and job commitments.

2. Cost - Tuition is relatively low compared with many programs. Also, there are no relocation costs and high living expenses.

3. Increased Student to Technologist Ratio - With the regional concept, students are not concentrated in one area with only a few hospitals. Each facility usually has only one student assigned. These students receive more individualized attention than those in traditional programs.

4. Convenience - The alternating week didactic schedule allows the student more flexibility.

As with any non-traditional program of study there are certain risks or problems that must be overcome. These problems may include the accelerated didactic schedule, independence of clinical sites in student instruction and stress to faculty of managing the regional program.

1. Accelerated Didactic Schedule - Because the didactic portion only meets on an alternating week schedule, students are presented with double the material in class that the traditional program would cover. This presents the possibility that students will become frustrated and drop the program or fail. Solutions to this potential problem include:

   A. Incorporate student study skills into the general program orientation.

   B. Provide detailed course syllabi with very specific learning objectives.

   C. Structure instruction to incorporate accelerated learning techniques.

D. Use a variety of instructional strategies to provide for different student learning styles.

E. Plan for the remediation of the slower learner and enrichment of the faster learner.

F. Develop a course sequence which progressively develops the students.

2. Increased Independence of Clinical Sites in Student Instruction - Because sites are in such a broad region, clinical supervisors are relied upon more heavily in each facility than traditional programs. This presents the possibility that there could be a compromise of academic integrity. Solutions to this potential problem include:

A. Investigate and ensure facility administration and personnel commitment to the program

B. Provide a detailed orientation for affiliate clinical supervisors and students including a detailed policy and procedure manual. Provide specific criteria for the supervision, instruction and management of students.

C. Implement a mandatory fundamental but comprehensive educational methodologies course for affiliate supervisors and instructors.

D. Develop a detailed evaluation and competency development plan to document student progression.

E. Pay affiliate supervisors/instructors to increase the sense of responsibility for the students.

F. Encourage open and frequent communication by providing fax machines and 1-800 numbers. Address problems immediately.

G. . Schedule regular visits by full-time faculty. Each site should be visited at least twice in each semester with one of these visits conducted by the program director.

3. Stress to Faculty of Managing Regional Program - As mentioned earlier, the regional programs manage many students and facilities over a wide geographic area. High stress situations are often present. This presents the possibility of difficulty employing and keeping qualified faculty. Solutions to this potential problem include:

A. Share the regional model with applicants for program positions and investigate their desire to be a part of an innovative educational program.

B. Ensure experience, competence, maturity and commitment of faculty member.

C. Provide academic and clerical support to allow enough time for administration of the program and instructional preparation.

D. Provide an experienced mentor for new program directors.

E. Make travel for full-time faculty as pleasant as possible by providing mileage reimbursement, a college vehicle, a credit card for lodging and phone expenses, and a cellular phone for emergencies.

The structure of the regional concept has been incorporated with great success for the courses of Magnetic Resonance Imaging, Advanced Magnetic Resonance Imaging, and the Technical Certificates of Credit for Radiation Therapy Technology and Nuclear Medicine Technology. The concept will be implemented in the future for Vascular-Interventional Angiography, Computed Tomography and Mammography.

Chattanooga State's success with the implementation of regional, non-traditional delivery system programs indicates that quality can be maintained using flexible delivery systems. As education, and the students whom education serves change, the need for flexible delivery systems will become ever more acute. This flexibility has served Chattanooga State well and has expanded the College's mind-set on the many methods which are available for the preparation of job-competent health care specialists.